
 * INDIANA SINCLAIR-TIMEX NEWSLETTER *

Jan-Feb 1991

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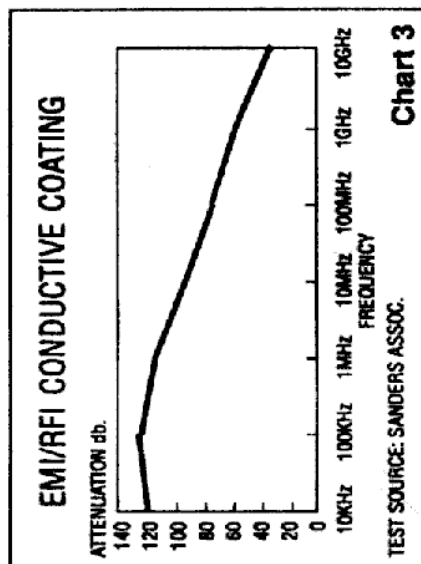
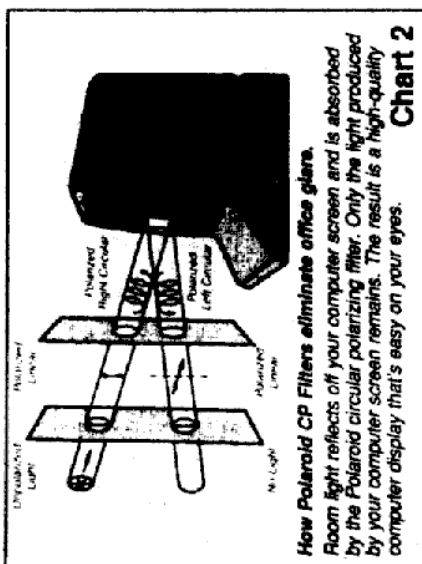
This issue....

Next meetings -- March, April and May
 (Club picnic in May)
 Polaroid Charts and Ad (referred to in Radiation and VDT)
 Radiation and VDT by Polaroid
 Stepping Rate Fix on TS2068 and Larken by Bob Swoger & Larry
 Kenny (excerpted from CATUG N/L)
 Sinclair ZX81 Schematic
 More News You Can Use from Across The Pond by Mike Felerski

I.S.T.U.G. MEETING

The meeting for March will be held March 30th, at 1:30 P.M. With the help of Paul Holmgren, Don Lambert and Frank Davis we hope to get up and running a TS1000 with Aerco Disk Drive system. April meeting will be on April the 27th, 1:30 PM at the Eagledale Public Library. For those who need directions call Paul Holmgren at 317-291-6002 or Frank Davis at 317-473-8031. All meetings, unless notified otherwise are held the last Saturday of each month, at 1:30 P.M. at the Eagledale Public library.

For the month of May we will be having our annual family club picnic. This will be held on the weekend before the Indianapolis 500 Race, starting at 1:00 P.M. at Carol and Frank Davis's country place. We are holding it a month earlier this year to avoid the hot part of the year. Those who attended last year will remember 100 degrees or more. A bit more work has been done there so it should be more comfortable all the way around. Next issue will include a map on how to get there.



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What is Radiation?

Electromagnetic radiation includes many different categories which are different from one another in frequency. The frequency is a characteristic something like "pitch" in sound. The human eye is sensitive to a very small portion of the overall frequency range, and this band of frequencies we call "visible light". Radiation of slightly higher frequency than the eye can detect is called ultraviolet and at higher frequencies yet it is called x-rays and gamma-rays. Radiation of slightly lower frequency than the eye can detect is called infrared, and at lower frequencies yet it becomes microwaves, and then radio waves, VLF and finally ELF. As you can see from Chart 1, radiation is given off from a wide range of common and not so common things that humans interact with. X-ray equipment, power lines, automobile radios, the sun, washing machine motors and VDT's are all things that give off forms of electromagnetic radiation.

What Radiation is given off by a VDT?

VDT's give off several categories of electromagnetic radiation, both ionizing (very high frequency) and non-ionizing (medium to low frequency). The quantities of ionizing radiation (such as x-rays and ultraviolet) are very low. In fact, home or office lighting gives off higher levels of ionizing radiation than a VDT. Visible light is also given off from a VDT. That is how you can read your display.

Non-ionizing (e.g., lower frequency) radiation is also emitted from a VDT. Most of the

non-ionizing radiation emitted by a VDT occurs in the Very Low Frequency (VLF) range of 12-125 Kilohertz (KHz). Also non-ionizing radiation is emitted in small amounts, especially in the Extremely Low Frequency (ELF) range, from the high voltage transformer in the cathode ray tube.

Is Radiation from a VDT harmful to human health?

According to the U.S. Bureau of Radiological Health, ionizing radiation emitted from VDT's is in such low intensities that it is within present occupational health standards and not considered a concern.

Non-ionizing radiation which is emitted in the VLF/ELF range is not quite as clearly described. Various organizations (private and government) in the United States, Sweden, Denmark and Canada have over the past few years initiated studies to determine the impact of long-term use of VDT's on human health. Studies have been conducted by such organizations as Kaiser Permanente, the University of Toronto, Johns Hopkins University, The National Institute of Occupational Safety and Health, as well as government sponsored studies in European countries. Of particular focus is the health effect on pregnant women. Those studies completed in the 1980s have been inconclusive regarding the health effects on humans working with VDT's. Some studies concluded that no health risks were being taken by VDT users while others concluded that VDT users may face some level of health

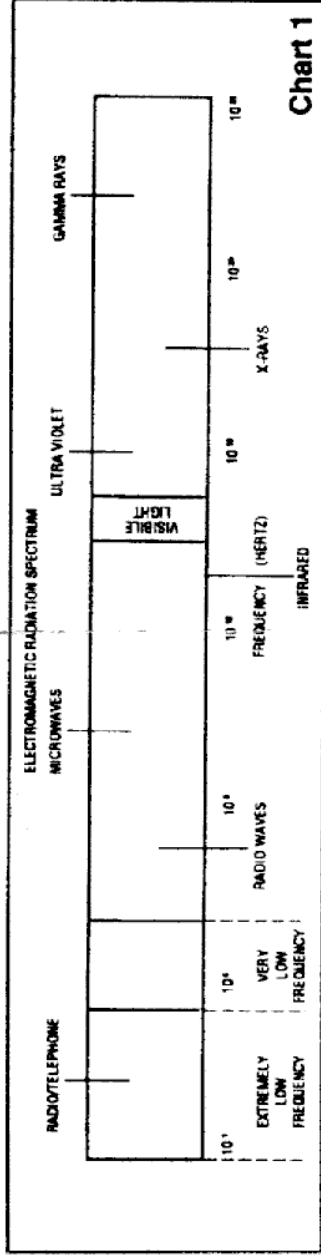
hazard. Currently, additional studies are being conducted which will be concluded in the early 1990s. At the present time, some European countries and certain parts of the United States and Canada have enacted or are considering legislation that revolves around the entire question of humans using VDT's. As is the case with the medical research studies, the different legislation passed or proposed in different areas of the world varies widely.

It may be that we will be facing the question of whether or not there are health risks to VDT users for some time. At the present time, the only thing that is clear is that there is not a consistent opinion from the medical, scientific and legal communities.

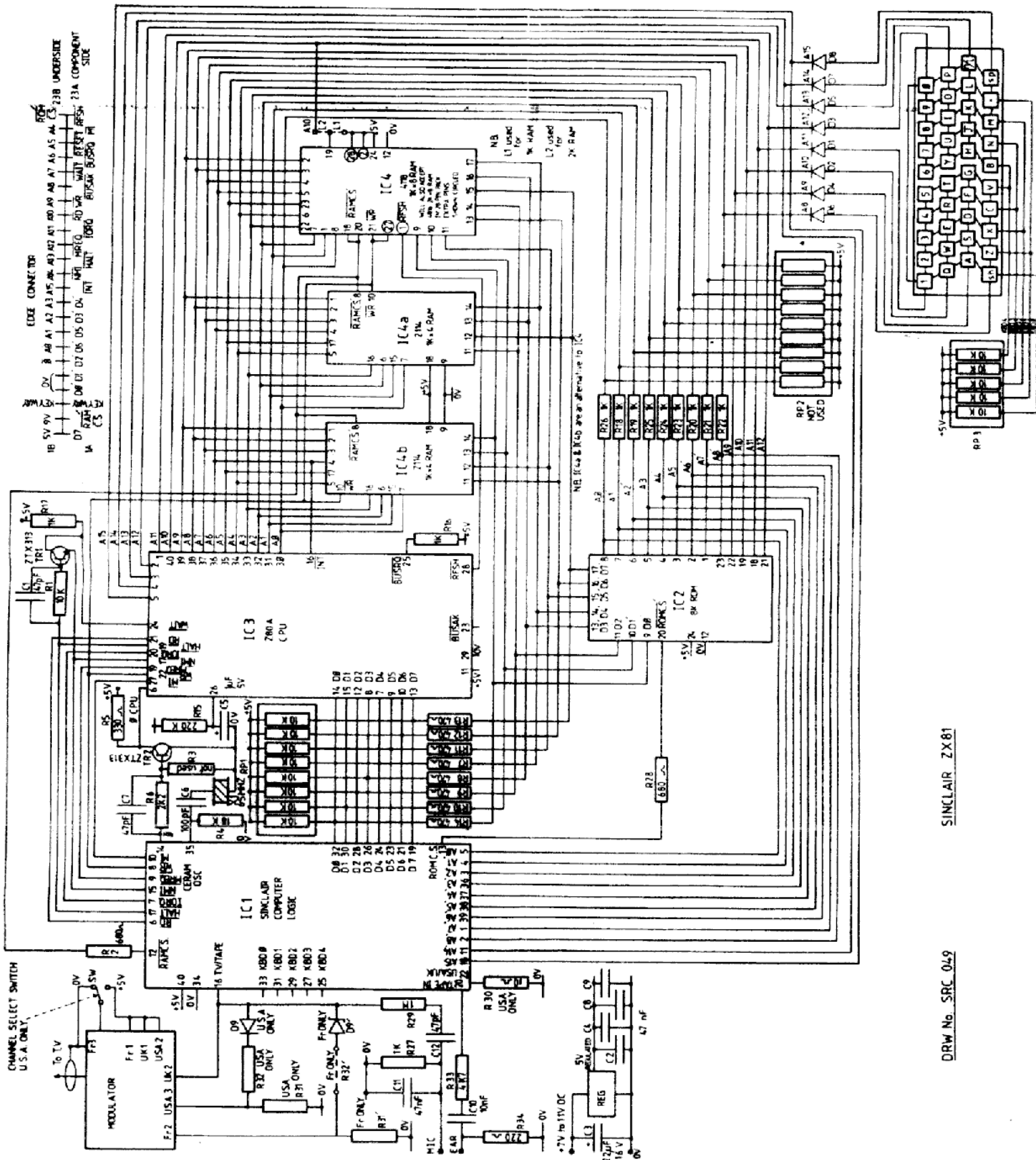
How does Polaroid address the "radiation" issue?

Until the medical, scientific and legal communities determine whether (and how) radiation from VDT's is harmful to human health it is not possible to design a VDT screen filter that provides the assurances people seek.

At the same time, the static control models of Polaroid VDT screen filters contain an electrically conductive coating which, when properly grounded, eliminates static charge and certain dust and interference problems produced by static charge. (Polaroid offers various models of Circular Polarizing filters for VDT's that provide these features). It is a fact that this conductive coating affects other electric phenomena besides static. It reduces many categories of electromagnetic radiation. Chart 3 shows the reduction in radiation achieved by the filter coating as measured by an independent laboratory. We cannot suggest that these reductions are significant in terms of operator health (since there is no consensus on what is the effect of whatever type of radiation emitted by a VDT on operator health), but we believe that these are substantial reductions in radiation.



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SINCLAIR ZX81

STEPPING RATE FIX

by

Bob Swoger and Larry Kenny

The May 1989 issue of Capital District T/S Computer Club's newsletter told of two members using TS2068's with LarKen DOS having trouble reading each other's disks. It seemed that Fred Lewis could read John Warren's disks but John could not read Fred's disks. This sounded familiar to me as I once had trouble reading disks that came from Rod Gowen and Larry Kenny.

The problem I had was head stepping rate. The drives I use have a 30ms stepping rate. This means that to move from track 0 (the directory track) to track 40 requires 1.2 seconds. A 6 ms stepping rate requires only 240ms. What the controller chip does is wait a period of time to begin reading or writing the disk to give the head time to get to the desired track! The information for the stepping rate is placed in track 0 when the disk is FORMATED.

There is no problem reading the directory track because the head starts there, but the head on John's drive is not yet over the correct track when the controller tries for the read. For this reason John Warren could not read Fred Lewis's disks. Fred either has a newer controller chip or has drives with a 6 ms stepping rate and FORMATED his disks accordingly.

I could not read the SYSTEM disk that Larry Kenny sent me. Larry had not run into the slower drives up to that point. Mine are DEC dual drive units using TEAC drives purchased in the early 80's as a group buy and are so reliable I just won't give them up.

Larry was sure he had the answer when I phoned him and to get me started back in February of 1988, he sent a program to the club BBS at 2 AM while I slept to fix his disks so that I might read them. I tried it and it worked! I re-wrote it and called it STEPRT.B1 The stepping rate information is in track 0 and his program fixes the disk to the 30 ms stepping rate.

Now about controller chips, Larry stated that he started using the new Western Digital chips that could only select 6 ms or faster head stepping mechanisms. I told him, each time I ordered, to send me only the old WDC WD1770 controller chip in units he built for me and my friends as over 200 of these TEAC units are in the area and we all want to be compatible.

When passing around disks for the LarKen disk operating system be sure they are formatted single side 40 track with a 30 ms head stepping rate so we all can read them.

To read unreadable disks, just load in the program below, it will autorun. After removing the write protect label from the faulty disk, place it into DRIVE 0 and press <ENTER>. You will be able to read it from then on. I have tested it on LARKEN and RMG disks.

10 REM STEP RATE CHANGER v1g.0
BY LARRY KENNY AND BOB SWOGER

20 REM Further modified by
G. Chambers.

25 CLS : PRINT "' Disk Head
Stepping Modifier....

30 PRINT " A common head step rate is 6 ms, however some older drives need a slower head step rate. This program allows you to change it to another value." Remove the write-protect label, select the drive & the desired head speed, and place the disk to be modified into the drive. Then press ENTER"

35 PRINT "TAB 8;" and....

Presto... The job is done."

38 INPUT "Select drive(0/3) ";
dr: IF dr 0 OR dr 3 THEN GO TO 38

40 RANDOMIZE USR 100: GO TO dr

50 INPUT "Select head speed(6/
12/20/30)";hs

60 IF hs=6 OR hs=12 OR hs=20 OR
hs=30 THEN GO TO 80

70 GO TO 50

80 POKE 40015,(0 AND hs=6)+(1
AND hs=12)+(2 AND hs=20)+(3 AND
hs=30)

90 RESTORE 150

110 FOR n=40000 TO 40030

120 READ b: POKE n,b: NEXT n

150 DATA 243,205,98,0,175,50,29
32,205,126,0,205,123,0,62,3,50,
134,32,205,120,0,58,100,0,251,20
1,0,0,0,0

250 RANDOMIZE USR 40000

300 PRINT "' Head speed changed to ";hs;" ms."

400 STOP

9000 PRINT USR 100: SAVE "rate.B
1" LINE 1

Ooooo, More News You Can Use
From Across The Pond!



Reported By Mike Felerski

As many North American Timex Sinclair TS2068 users are aware, about 97% of the programs produced and marketed in Great Britain for the Sinclair Spectrum are conversions of arcade games. It has been said that there have been over 1000 different titles released since the introduction of the Spectrum! It seems as if each month there are a half a dozen new releases. The fall of 1990 saw such Spectrum game titles as Total Recall, based on the Arnold Schwarzenegger movie, Teenage Mutant Hero Turtles (which sound an awful lot like some other turtles we've heard from lately) by KONAMI, F-16 Combat Pilot by Digital Integration, and even a game based on the old Monty Python's Flying Circus television program!

SPECTRUM HARDWARE WATCH

The Video Vault Ltd. is back into magazine advertisements once again. Remember, the VV offers 24 hour Spectrum (and Commodore 64) repairs. They also have a brand new catalog with 24 pages of "software for all computers" as well as joysticks, spares, books and more.

Microsnips Ltd. is offering a Spectrum +3 computer plus five games, five blank diskettes, competition joystick and free cassette lead for only £199. As a bonus, the purchaser receives a free hand-held arcade game. This appears to be the best package deal available through mail order.

Cheetah's Spectrum Digital Drum System for the Spectrum is also back in the news with a new price of £12.50-£14.99 (previously £29.95) and it is now available from Microsnips and Datal Electronics. In the area of the unusual comes the "Clive Drive" from Inspec Ltd. of Dublin, Ireland. This company markets a low-cost 3" disk system for the Spectrum 16K, 48K, 128K and +2 systems. To operate the drive you must purchase the "Clive Interface". Once you have the interface, you can add the inexpensive "Clive Printer", a full 80 column graphics printer. The drive and interface are £86.91. The price for the interface and printer is also £86.91, and all three as a package deal are £130.39 (note, all prices given are excluding VAT and shipping).

Look for more information on the "Clive Drive" and "Clive Printer" in a future ISTUG newsletter!

CD ROM For The Spectrum?

1991 also brought Sinclair Spectrum users a CD or Compact Disc ROM package for loading programs. The system uses software and the user's own compact disc player to load programs into the computer.

Details are a bit sketchy at present, but this ISTUG reporter plans to investigate this product further!

Addresses To Write To For More Product Information

Video Vault, Ltd.
Railway Street
Hadfield, Cheshire SK14 8AA
England

Phone: 0457 866555

[VISA]

Microsnips Ltd.
37 Seaview Road
Wallasey, Merseyside L45 4QN
England

Phone: 051-630 3013

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INSPEC Ltd.
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Blackrock, CO. Dublin Ireland

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Datal Electronics Ltd.
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Fenton Industrial Estate,
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England

Phone: 0782 744707 (24 hour order line)

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